AMENDMENT

Listing of Claims

The following listing of claims replaces all previous listings or versions thereof:

1. (Currently amended) A method for producing bone *ex vivo*, comprising the steps of:

   a) obtaining ~~an osteogenic cell~~(i) osteoblast cells, (ii) preosteoblast cells or (iii) bone precursor ~~cell~~cells that express low amounts of bone proteins and exhibit a low degree of internal complexity;

   b) culturing said ~~cell~~cells under serum free conditions in the presence of one or more osteogenic growth factors and at cell densities which produce a bone cell spheroid of approximately 3000 to 100,000 cells; and

   c) maintaining said bone cell spheroid under conditions which produce bone within said bone cell spheroid.

2. (Original) The method of claim 1, wherein the osteogenic cell or bone precursor cell is of human origin.

3. (Original) The method of claim 1, wherein the osteogenic cell or bone precursor cell is of bovine origin.

4. (Original) The method of claim 1, wherein the osteogenic cell or bone precursor cell is of equine origin.

5. (Original) The method of claim 1, wherein the osteogenic cell or bone precursor cell is of canine origin.

6. (Original) The method of claim 1, wherein the osteogenic cell or bone precursor cell is of feline origin.

7. (Original) The method of claim 1, wherein the osteogenic cell or bone precursor cell is of murine origin.

8. (Original) The method of claim 1, wherein the osteogenic cell or bone precursor cell is of rat origin.

9. (Original) The method of claim 1, wherein the osteogenic cell or bone precursor cell is of chick origin.

10. (Original) The method of claim 1, wherein the growth factor is TGF-β1, TGF-β2, TGF-β1.2, VEGF, insulin-like growth factor I or II, BMP2, BMP4, or BMP7.

11. (Original) The method of claim 1, wherein the growth factor is parathyroid hormone, calcitonin, interleukin-6, or interleukin-11.

12. (Original) The method of claim 1, further comprising purifying the osteogenic cell or bone precursor cell by physico-chemical separation techniques.

13. (Original) The method of claim 12, wherein the physico-chemical separation technique is equilibrium density separation.

14. (Original) The method of claim 1, further comprising purifying the osteogenic cell or bone precursor cell by immuno-affinity isolation.

15. (Original) The method of claim 14, wherein the immuno-affinity isolation utilizes immune adhesion, immuno-column chromatography, or fluorescence-activated cell sorting.

16. (Original) The method of claim 14, wherein the immuno-affinity isolation utilizes antibodies to osteocalcin, osteonectin, or alkaline phosphatase, or combinations thereof.

17. (Original) The method of claim 1, wherein said cell-densities at the initiation of the culture are from about 1.0×10^3 to about 1×10^6 cells per cm^2.

18. (Original) The method of claim 1, further comprising implanting the cells *in vivo*.

19. (Previously presented) A method of providing bone tissue to a mammal, comprising obtaining a bone cell spheroid of approximately 3000 to 100,000 bone cells and implanting the bone cell spheroid into said mammal.

20. (Original) The method of claim 19, wherein the bone cell spheroid is implanted in one or more of alginate gels, collagen gels, or fibrin gels.

21. (Original) The method of claim 19, wherein the bone cell spheroid is implanted in one or more of polylactic acid, polyglycolic acid or PGLA.

22. (Original) The method of claim 19, wherein the bone cell spheroid is implanted in or in conjunction with hydroxyapatitic, other apatitic compounds, devitalized animal bone, devitalized human bone, or porous ceramic structures.

23. (Original) The method of claim 19, wherein the implantation is made in conjunction with orthopedic surgery and/or orthopedic devices, such as hip implants, knee implants, or spinal fusions.

24. (Original) The method of claim 19, wherein the implantation is made in conjunction with oral surgery and/or dental implants.

25. (Original) The method of claim 19, wherein the implantation is made in conjunction with plastic surgery.

26. (Original) The method of claim 19, wherein the implantation is in conjunction with periodontal repairs.

27. (Original) The method of claim 19, wherein the implantation is into bone-forming tissue.

28. (Original) The method of claim 19, wherein the implantation is into a wound.

29. (Original) The method of claim 19, wherein the mammal has a bone disease such as osteoporosis, Vitamin D deficiency, Osteotitis deformans, Von Recklinghausen's Disease.

30. (Currently amended) A method for producing and using bone ~~*ex vivo,*~~ comprising the steps of:

a) obtaining ~~an osteogenic cell~~(i) osteoblast cells, (ii) preosteoblast cells or (iii) bone precursor ~~cell~~cells that express low amounts of bone proteins and exhibit a low degree of internal complexity;

b) culturing said ~~cell~~cells under serum free conditions in the presence of one or more osteogenic growth factors and at cell densities which produce a bone cell spheroid of approximately 3000 to 100,000 cells;

c) maintaining the bone cell spheroid under conditions which produce bone; and,

d) removing the cellular elements from the formed bone and using resulting bone *in vivo*.

31-37. (Canceled)

38. (Currently amended) A bone cell spheroid made by the process of:

a) obtaining ~~an osteogenic cell~~(i) osteoblast cells, (ii) preosteoblast cells or (iii) bone precursor ~~cell~~cells that express low amounts of bone proteins and exhibit a low degree of internal complexity; and

b) culturing said ~~cell~~cells under serum free conditions in the presence of one or more osteogenic growth factors and at cell densities which produce a bone cell spheroid of approximately 3000 to 100,000 cells.